

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>41 824.go.sev</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/002786</b>	International filing date (day/month/year) <b>18.03.2004</b>	Priority date (day/month/year) <b>09.04.2003</b>
International Patent Classification (IPC) or national classification and IPC		
Applicant <b>SMS DEMAG AKTIENGESELLSCHAFT</b>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>9</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																									
<p>4. This report contains indications relating to the following items:</p> <table><tr><td><input checked="" type="checkbox"/></td><td>Box No. I</td><td>Basis of the report</td></tr><tr><td><input type="checkbox"/></td><td>Box No. II</td><td>Priority</td></tr><tr><td><input type="checkbox"/></td><td>Box No. III</td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr><tr><td><input type="checkbox"/></td><td>Box No. IV</td><td>Lack of unity of invention</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. V</td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. VI</td><td>Certain documents cited</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VII</td><td>Certain defects in the international application</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VIII</td><td>Certain observations on the international application</td></tr></table>		<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input checked="" type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand	Date of completion of this report																								
Name and mailing address of the IPEA/EP	Authorized officer																								
Facsimile No.	Telephone No.																								

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/002786

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 6-10 \_\_\_\_\_ as originally filed/furnished
- pages\* 1-5, 5a \_\_\_\_\_ received by this Authority on 04.11.2004 with the letter of 02.11.2004
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-6 \_\_\_\_\_ received by this Authority on 04.11.2004 with the letter of 02.11.2004
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/2-2/2 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/002786

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-6	YES
	Claims		NO
Inventive step (IS)	Claims	1-6	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-6	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
1. Clarity - PCT Article 6			
1.1 Claims 1 and 5 are unclear and leave the reader uncertain as to the meaning of the technical feature in question, since they do not contain the feature of the supply system (12).			
1.2 The relative term "small" in claim 4 has no generally recognised meaning and leaves the reader uncertain as to the meaning of the technical feature in question. As a result, the subject matter of said claim is not clearly defined.			
2. Novelty, inventive step - PCT Article 33(1)			
2.1. Reference is made to the following documents:			
D1: FR-A-2 804 443 (USINOR) 3 August 2001 (2001-08-03)			
D2: PATENT ABSTRACTS OF JAPAN Vol. 0124, No. 79 (C-552), 14 December 1988 (1988-12-14) & JP 63 192853 A (KAWASAKI STEEL CORP), 10 August 1988 (1988-08-10)			

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2.2 Claims 1-6 satisfy the criteria in PCT Article 33(1).

The invention concerns a method for hot-dip coating a metal bar, in which the metal bar is guided vertically through a container that contains the molten coating metal and through an upstream guide channel of a defined height. Sealing is achieved by means of an electromagnetic inductor and a volumetric flow of the melt is introduced in the region of the vertical extension of the guide channel.

The invention addresses the problem of developing a method in which the surface of the dipping bath remains calm, thereby increasing the quality of the hot-dip coating.

The problem posed is solved as per the invention in that the volume flow corresponds to part or all of the tracking melt volume per unit of time, which is used to maintain a desired level.

Such a method is not known from any of the documents cited in the search report taken either alone or in combination.

Document D1 discloses (page 2, lines 33 and 34; page 3, lines 3-15; page 4, lines 3-10; claim 1) a method for hot-dip coating metal bars, in which the metal bar is guided vertically through a

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/002786

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

container that contains the molten coating metal and through an upstream guide channel. Sealing is achieved by means of an electromagnetic inductor. The melt volume stream that is fed to the guide channel is taken directly from the bottom region of the coating container. A desired level of coating metal in the container is not maintained by an additional supply system. The problem of a calm dipping bath surface is not solved in D1.

Document D2 discloses (abstract, drawing) a method for hot-dip coating metal bars, in which the metal bar is guided vertically through a container that contains the molten coating metal and sealing is achieved not by means of an electromagnetic inductor but by two pairs of rollers. D2 does not disclose the maintaining of a desired level of the coating metal in the container and does not solve the problem of a calm dipping bath surface.

Claims 1 and 2 are therefore novel and inventive.

The invention also concerns a device for carrying out the method according to one of claims 1 or 2, in which the supply line opens out in the region of the longitudinal side and in the region of the front end of the guide channel.

D1 and D2 disclose devices in which the melt is supplied from the longitudinal sides of the channel. Claims 4-6 are thus novel. The maintaining of a desired level of coating metal in

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/002786

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>the container by means of an additional supply system is not necessary in the device known from D1 and the device known from D2 does not include an electrical inductor. The devices known from those documents are therefore not suitable for implementing the claimed method and documents D1 and D2 cannot be combined. Claims 4-6 are therefore inventive.</p>

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/002786

Box No. VI

Certain documents cited

## 1. Certain published documents (Rule 70.10)

Application No.  
Patent No.Publication date  
(day/month/year)Filing date  
(day/month/year)Priority date (valid claim)  
(day/month/year)

## 2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure

Date of non-written disclosure  
(day/month/year)Date of written disclosure  
referring to non-written disclosure  
(day/month/year)

See Box V.2.